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(54) **BROADCAST RECEIVER, AND CONTROL METHOD FOR BROADCAST RECEIVER**

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(57) **ABSTRACT**

The broadcast receiver includes a storage unit configured to store first broadcast information for specifying a broadcast channel and/or program viewable on the broadcast receiver, an acquisition unit configured to acquire second broadcast information from the other broadcast receiver for specifying a broadcast channel and/or program viewable on the other broadcast receiver, an extraction unit configured to extract a broadcast channel and/or program from the first and second broadcast information not viewable on the broadcast receiver and viewable on the other broadcast receiver, and a generation unit configured to generate an electronic program guide that a user can distinguish a broadcast channel and/or program extracted from a broadcast channel and/or program that is viewable on the broadcast receiver.

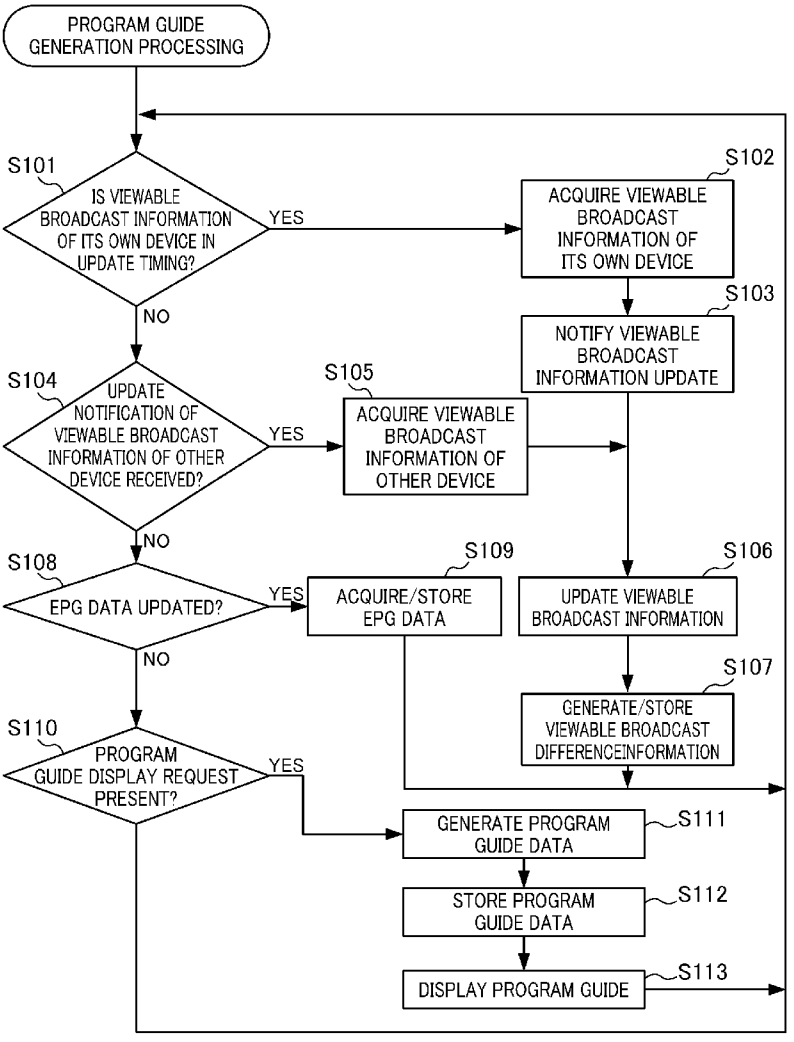


FIG. 1

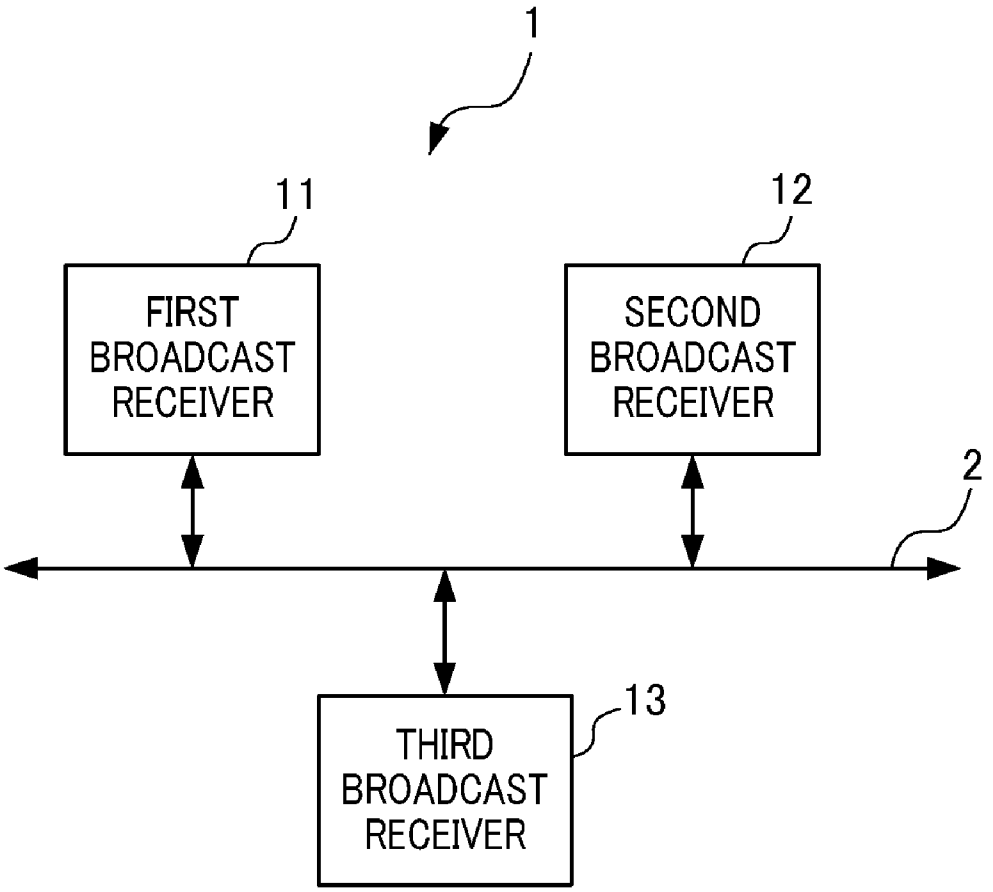

1
11
12
FIRST BROADCAST RECEIVER
SECOND BROADCAST RECEIVER
2
13
THIRD BROADCAST RECEIVER

FIG. 2

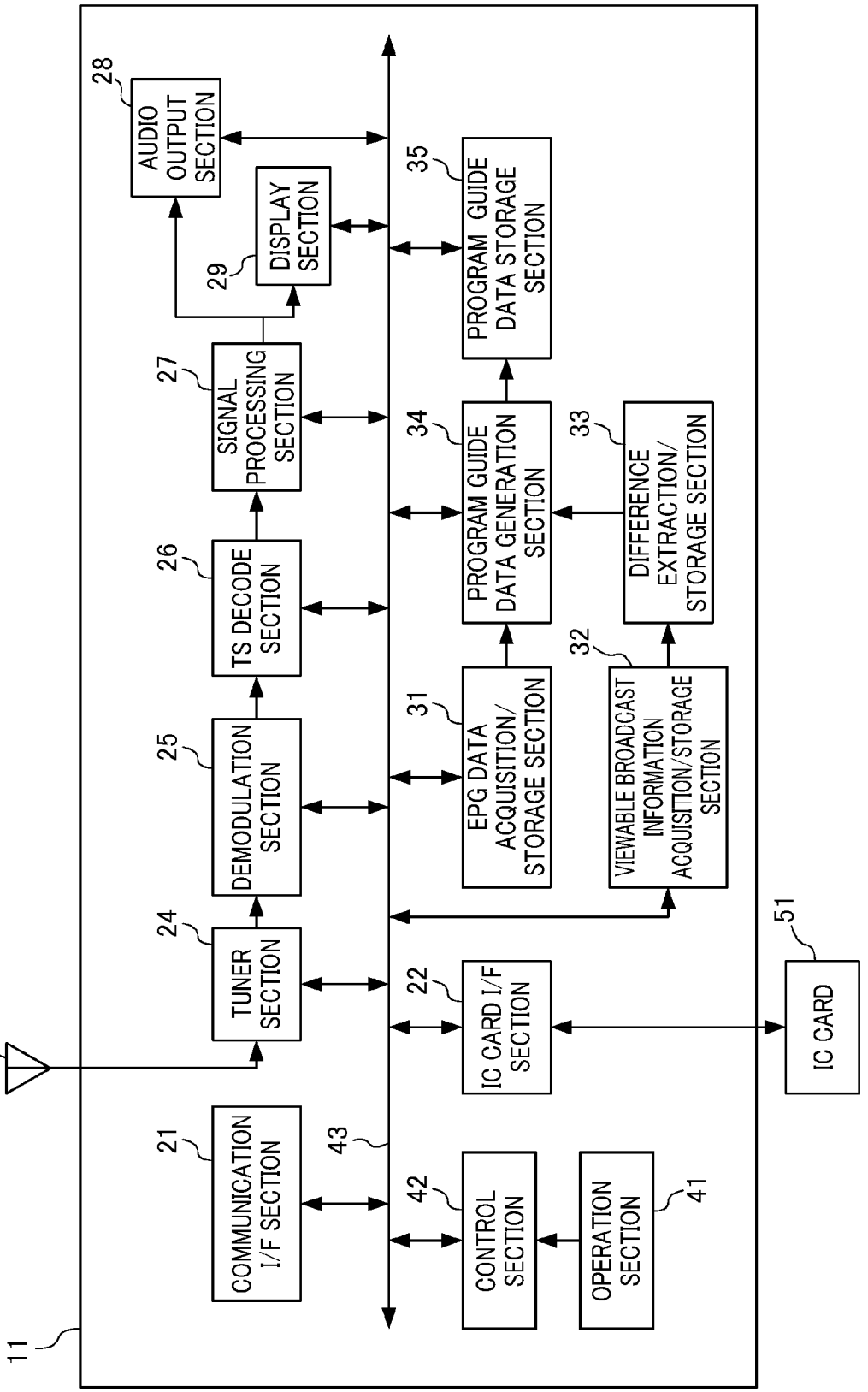

11
23
AUDIO OUTPUT SECTION
28
DISPLAY SECTION
29
SIGNAL PROCESSING SECTION
27
TS DECODE SECTION
26
DEMODULATION SECTION
25
TUNER SECTION
24
COMMUNICATION I/F SECTION
21
43
CONTROL SECTION
42
OPERATION SECTION
41
IC CARD I/F SECTION
22
PROGRAM GUIDE DATA STORAGE SECTION
35
PROGRAM GUIDE DATA GENERATION SECTION
34
EPG DATA ACQUISITION/ STORAGE SECTION
31
DIFFERENCE EXTRACTION/ STORAGE SECTION
33
VIEWABLE BROADCAST INFORMATION ACQUISITION/STORAGE SECTION
32
IC CARD
51

FIG. 3

BROADCAST RECEIVER 11	BROADCAST RECEIVER 12	BROADCAST RECEIVER 13
1	1	1
2	3	2
4	4	5
7	6	6
.	.	.
.	.	.
.	.	.

FIG. 4

BROADCAST RECEIVER 11	
BROADCAST RECEIVER 12	BROADCAST RECEIVER 13
3	5
6	6
.	.
.	.
.	.

FIG. 5

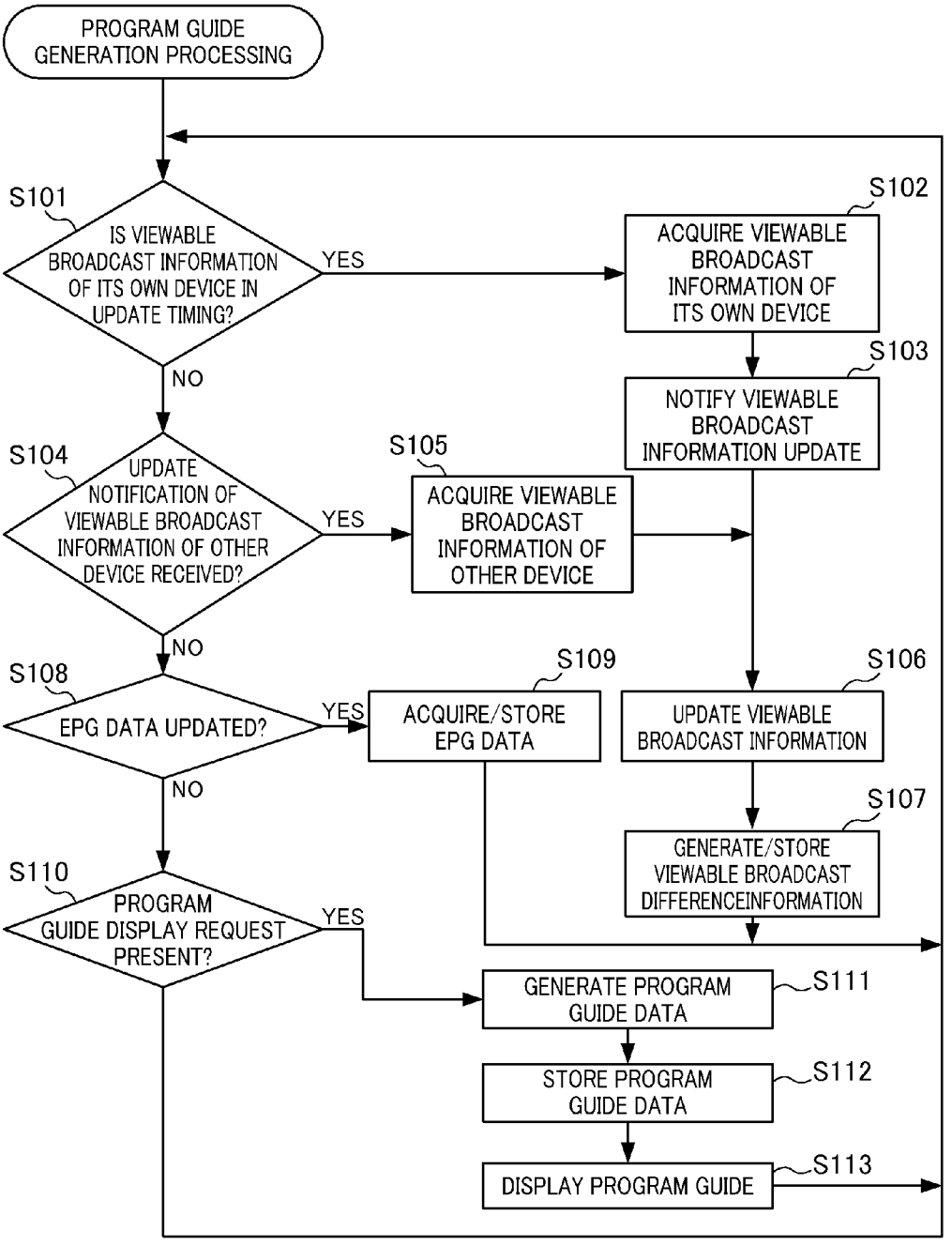

PROGRAM GUIDE GENERATION PROCESSING
S101
IS VIEWABLE BROADCAST INFORMATION OF ITS OWN DEVICE IN UPDATE TIMING?
YES
NO
S102
ACQUIRE VIEWABLE BROADCAST INFORMATION OF ITS OWN DEVICE
S103
NOTIFY VIEWABLE BROADCAST INFORMATION UPDATE
S104
UPDATE NOTIFICATION OF VIEWABLE BROADCAST INFORMATION OF OTHER DEVICE RECEIVED?
YES
NO
S105
ACQUIRE VIEWABLE BROADCAST INFORMATION OF OTHER DEVICE
S108
EPG DATA UPDATED?
YES
NO
S109
ACQUIRE/STORE EPG DATA
S106
UPDATE VIEWABLE BROADCAST INFORMATION
S107
GENERATE/STORE VIEWABLE BROADCAST DIFFERENCEINFORMATION
S110
PROGRAM GUIDE DISPLAY REQUEST PRESENT?
YES
S111
GENERATE PROGRAM GUIDE DATA
S112
STORE PROGRAM GUIDE DATA
S113
DISPLAY PROGRAM GUIDE

FIG. 6

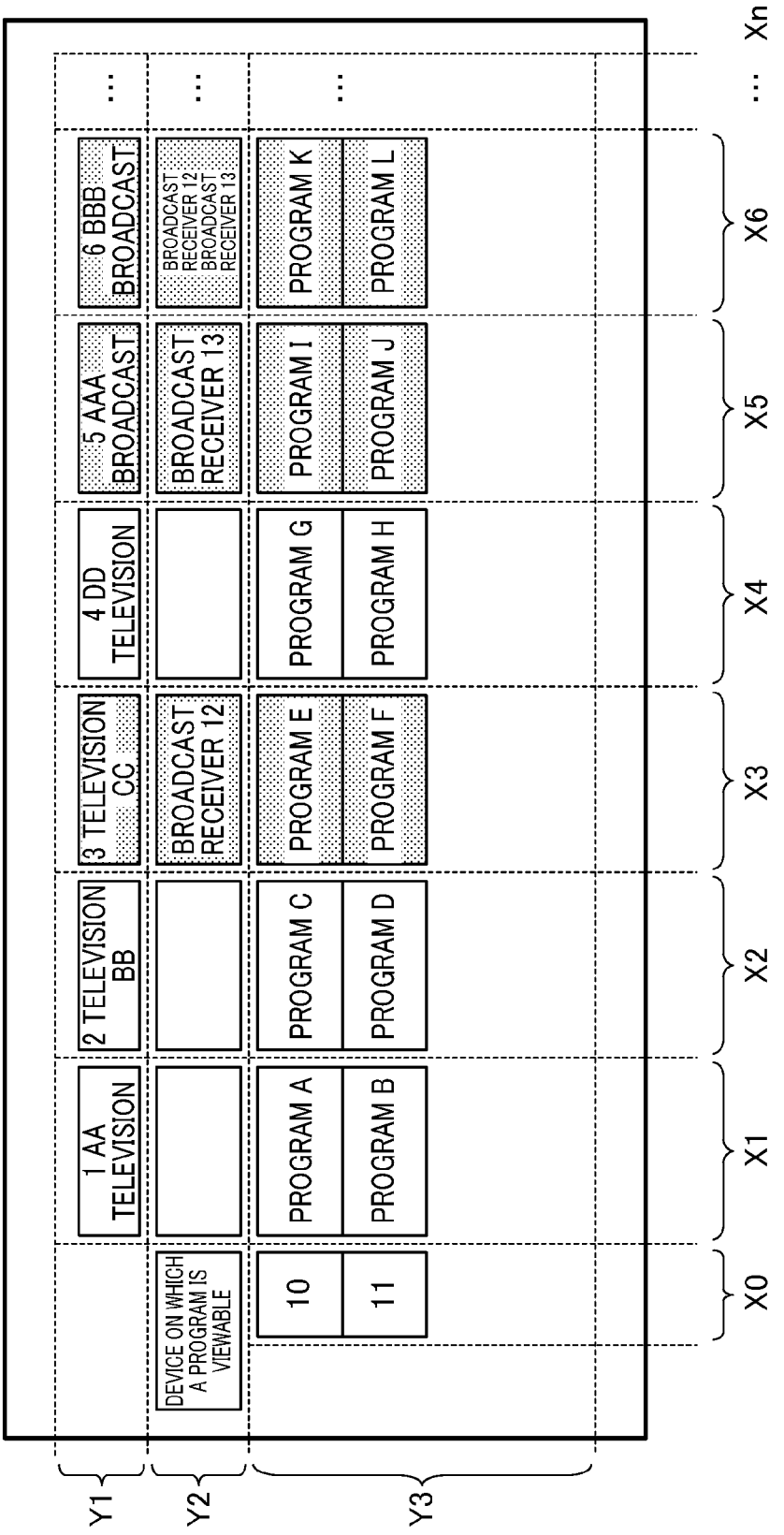

Y1
Y2
Y3
X0
X1
X2
X3
X4
X5
X6
Xn
DEVICE ON WHICH A PROGRAM IS VIEWABLE
1 AA TELEVISION
2 TELEVISION BB
3 TELEVISION CC
4 DD TELEVISION
5 AAA BROADCAST
6 BBB BROADCAST
BROADCAST RECEIVER 12
BROADCAST RECEIVER 13
10
11
PROGRAM A
PROGRAM B
PROGRAM C
PROGRAM D
PROGRAM E
PROGRAM F
PROGRAM G
PROGRAM H
PROGRAM I
PROGRAM J
PROGRAM K
PROGRAM L

FIG. 7

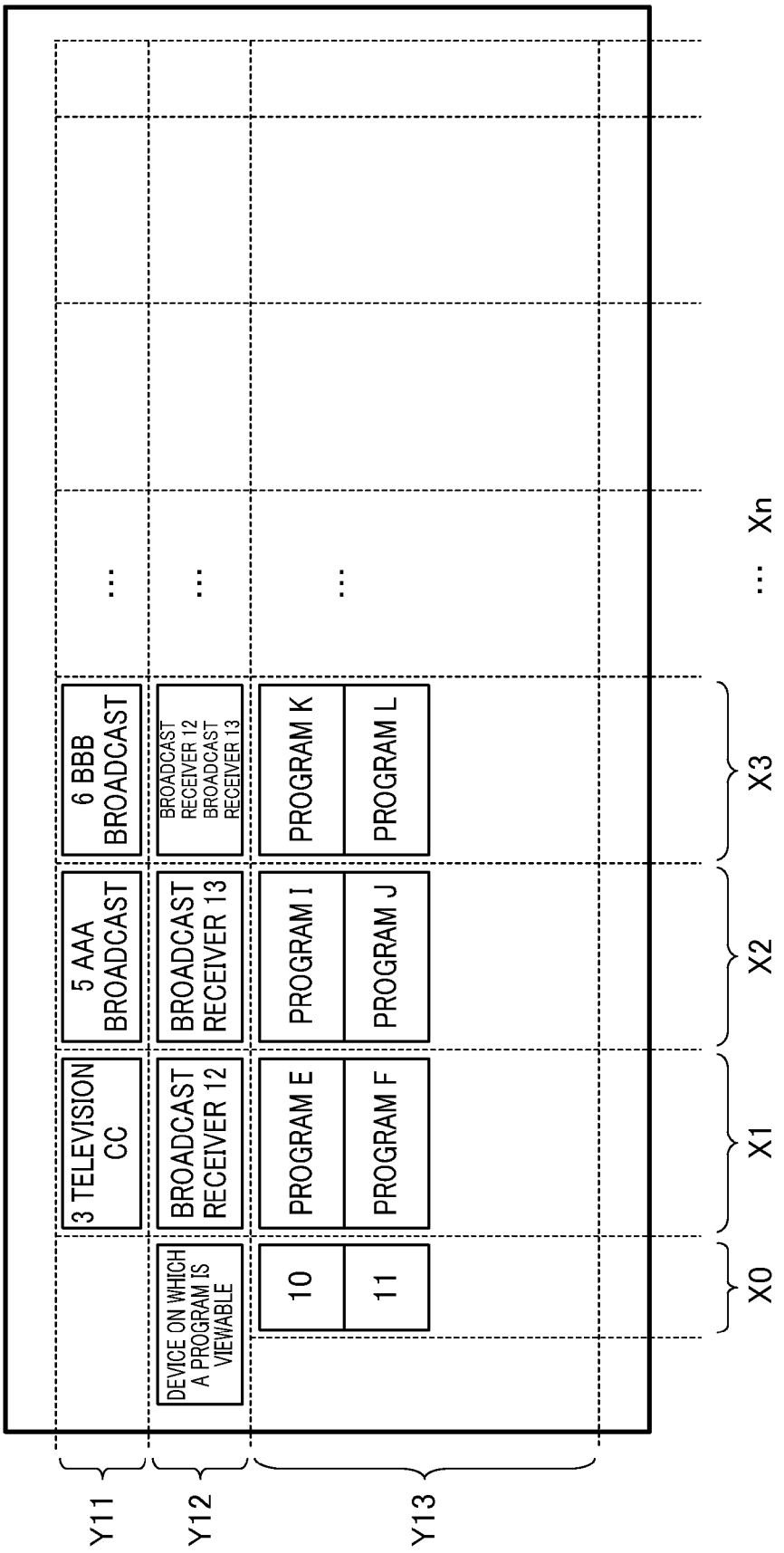
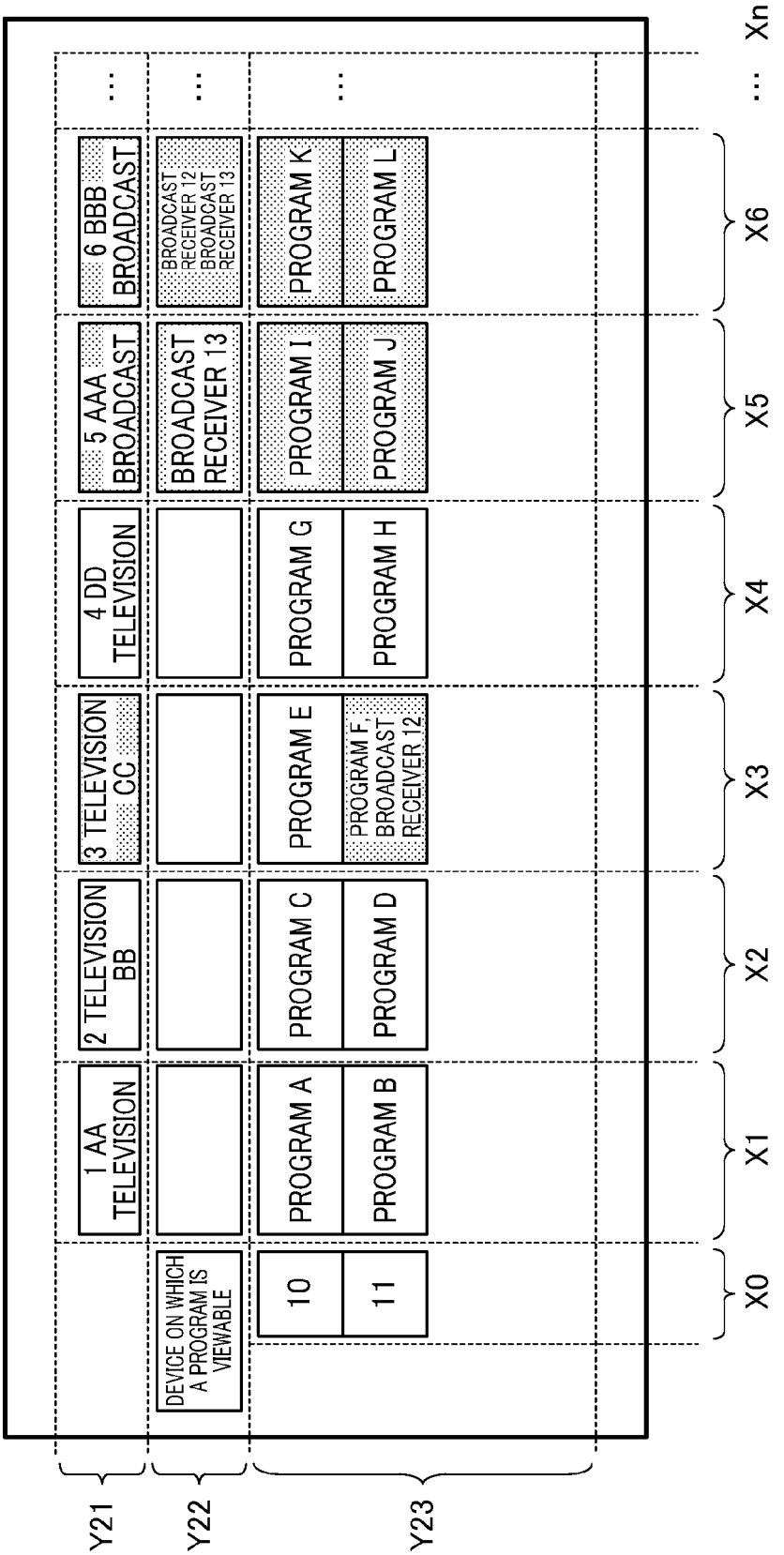

Y11
Y12
Y13
DEVICE ON WHICH A PROGRAM IS VIEWABLE
3 TELEVISION CC
5 AAA BROADCAST
6 BBB BROADCAST
BROADCAST RECEIVER 12
BROADCAST RECEIVER 13
BROADCAST RECEIVER 12 BROADCAST RECEIVER 13
10
11
PROGRAM E
PROGRAM F
PROGRAM I
PROGRAM J
PROGRAM K
PROGRAM L
X0
X1
X2
X3
Xn

FIG. 8


1 AA TELEVISION
2 TELEVISION BB
3 TELEVISION CC
4 DD TELEVISION
5 AAA BROADCAST
6 BBB BROADCAST
...
...
...
...
DEVICE ON WHICH A PROGRAM IS VIEWABLE
BROADCAST RECEIVER 13
BROADCAST RECEIVER 12, BROADCAST RECEIVER 13
10
11
PROGRAM A
PROGRAM B
PROGRAM C
PROGRAM D
PROGRAM E
PROGRAM F, BROADCAST RECEIVER 12
PROGRAM G
PROGRAM H
PROGRAM I
PROGRAM J
PROGRAM K
PROGRAM L
X0
X1
X2
X3
X4
X5
X6
Xn
Y21
Y22
Y23

BROADCAST RECEIVER, AND CONTROL METHOD FOR BROADCAST RECEIVER

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to a broadcast receiver and a control method for a broadcast receiver.

[0003] 2. Description of the Related Art

[0004] In recent years, electronic program guide (hereinafter referred to as "EPG") information has been provided for digital satellite broadcasting and ground-based broadcasting. EPG is provided, for example, by a broadcast program information multiplexing system. In general, EPG displays program information for each broadcast station. For example, Japanese Patent Laid-Open No. 2001-078110 discloses a technique for displaying a viewable program only by a broadcast receiver being viewed by a user based on the user's broadcast contract information in order to enhance the convenience of EPG.

[0005] For example, in an environment such as a home network through which a plurality of broadcast instruments (broadcast receivers) are connected, a program viewable by a user may be different for each broadcast instrument due to different contract for a fee-based broadcasting for each broadcast instrument. However, Japanese Patent Laid-Open No. 2001-078110 discloses a technique for easily recognizing a program that is viewable on an independent broadcast instrument, but does not disclose a technique by which a user recognizes a program viewable on each broadcast instrument in an environment where a plurality of broadcast instruments are connected. Therefore, in order for a user to know whether or not a program can be viewed by other broadcast devices on the home network for example, the user may have to confirm the electronic program guide for each discrete broadcast instrument, resulting in considerable time loss.

SUMMARY OF THE INVENTION

[0006] The present invention provides a broadcast receiver having an interface capable of communicating with at least one other broadcast receiver and a display unit for displaying the electronic program guide, the broadcast receiver has a storage unit configured to store first broadcast information for specifying a broadcast channel and/or program that is viewable on the broadcast receiver, an acquisition unit configured to acquire second broadcast information from the other broadcast receiver for specifying a broadcast channel and/or program that is viewable on the other broadcast receiver, an extraction unit configured to extract a broadcast channel and/or program from the first and second broadcast information that is not viewable on one broadcast receiver and viewable on the other broadcast receiver, and a generation unit configured to generate the electronic program guide that a user can distinguish a broadcast channel and/or program extracted from a broadcast channel and/or program that is viewable on the broadcast receiver.

[0007] Further features of the present invention will become apparent from the following description of exemplary embodiments with reference to the attached drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0008] FIG. **1** is a system configuration diagram of a home network according to an embodiment of the present invention.

[0009] FIG. **2** is an internal configuration diagram of a broadcast receiver according to an embodiment of the present invention.

[0010] FIG. **3** is a viewable broadcast information table held by the broadcast receiver.

[0011] FIG. **4** is a viewable broadcast difference information table held by the broadcast receiver.

[0012] FIG. **5** is a flowchart showing the flow of electronic program guide generation processing by the broadcast receiver.

[0013] FIG. **6** is an example of an electronic program guide to be generated by the broadcast receiver.

[0014] FIG. **7** is an example of an electronic program guide to be generated by the broadcast receiver.

[0015] FIG. **8** is an example of an electronic program guide to be generated by the broadcast receiver.

DESCRIPTION OF THE EMBODIMENTS

[0016] Hereinafter, embodiments of the present invention will now be described with reference to the accompanying drawings. An exemplary embodiment of the present invention includes a system such as one in which a plurality of the broadcast receivers are connected to an in-home network.

[0017] FIG. **1** is an exemplary configuration of a home network **1** according to an embodiment of the present invention. The home network **1** includes a network line **2**, a first broadcast receiver (broadcast receiver) **11**, a second broadcast receiver **12**, and a third broadcast receiver **13**. Each of the broadcast receivers **11**, **12**, and **13** is connected via the network line **2**. Each of the broadcast receivers **11**, **12**, and **13** includes a tuner capable of receiving a broadcast of a predetermined broadcast carrier (e.g., ground-based broadcasting, broadcast satellite (BS) digital broadcasting, 110 degree communication satellite (CS) digital broadcasting, cable television (CATV), or the like), and can output video contents obtained by receiving and demodulating a broadcast by the tuner.

[0018] Examples of a standard for constituting a home network (referred to as a "LAN") shown in FIG. **1** include Ethernet (registered trademark). It goes without saying that a home network can be configured employing other communication standards. In a network that is employed in the present embodiment, however, the other configuration may be contemplated such that at least two broadcast receivers are connected to a network using a transmission standard such as, for example, HDMI (High-Definition Multimedia Interface) or IEEE1394.

[0019] Hereinafter, with reference to the first broadcast receiver **11**, a broadcast receiver according to an embodiment of the present invention will be described with regard to an exemplary configuration to enable the output of an electronic program guide.

[0020] FIG. **2** is an exemplary internal configuration of the first broadcast receiver **11** (hereinafter referred to as "broadcast receiver **11**"). Firstly, the broadcast receiver **11** includes an operation section **41**, a control section **42**, a communication I/F (interface) section **21**, and the IC card I/F section **22**.

[0021] The operation section **41** receives a station-selection operation and the like carried out by a user on the broadcast receiver **11**, and outputs an operation signal to the control section **42**. The control section **42** receives an operation signal performed on the operation section **41**, and executes a station-selection control. The control section **42** includes a microcomputer consisting of, for example, CPU, ROM, RAM, and

the like, and executes various control processes. When the control section **42** communicates with each section provided within the broadcast receiver **11**, an internal bus **43** is used.

[0022] The communication I/F section **21** is an interface for connecting with the network line **2** constituting the home network **1**. For example, the communication I/F section **21** includes a hardware device corresponding to a physical layer and a program corresponding to a predetermined software layer for connecting with the network line **2** for communication. The IC card I/F section **22** reads out a cryptographic key and contract information held in an IC card **51** based on a request from various sections constituting the broadcast receiver **11**, and transmits such information to various sections. The IC card **51** also receives a command from various sections, and returns a response based on information in the IC card **51**. The IC card **51** refers to a B-CAS card is to decode a code applied to a broadcast of a broadcast carrier such as, for example, BS digital broadcasting, 110 degree CS digital broadcasting, and ground-wave digital broadcasting for viewing.

[0023] The broadcast receiver **11** also includes an antenna **23**, a tuner section **24**, a demodulation section **25**, a TS (Transport Stream) decode section **26**, a signal processing section **27**, an audio output section **28**, and a display section **29**. Here, the sections from the antenna **23** to the display section **29** are an image processing system for receiving a broadcast wave of a predetermined broadcast carrier to ultimately output it as an image.

[0024] The antenna **23** receives a broadcast wave of a predetermined broadcast carrier. The tuner section **24** receives a signal obtained from the antenna **23**. Then, the tuner section **24** obtains a signal component corresponding to a broadcast station specified by a user from a received signal by performing station-selection processing in accordance with the station-selection control of a control section **41** to be described below. The demodulation section **25** receives a signal component obtained by the tuner section **24**, and executes demodulation processing relative to modulation applied upon transmission so as to obtain a baseband signal. A TS decode section **26** descrambles the baseband signal that has been subjected to scramble processing.

[0025] The signal processing section **27** receives a signal that has been subjected to descramble processing by the TS decode section **26**. The signal processing section **27**, first, executes decoding processing on a compression-coded signal so as to obtain a predetermined type of data. Furthermore, the signal processing section **27** performs other various signal processing operations also. Examples of such signal processing include pixel number conversion processing, IP conversion processing, and the like.

[0026] The audio output section **28** outputs audio data that has been subjected to decoding processing by the signal processing section **27**. The display section **29** outputs image data that has been subjected to decoding processing by the signal processing section **27**. A display device employed for the display section **29** is not particularly limited. Examples of an employable display device include a cathode-ray tube, liquid crystal display, plasma display, FED, organic EL, SED, and the like. The acronyms of "FED," "EL," and "SED," stand for Field Emission Display, Electro Luminescence, and Surface-Conduction Electron-emitter Display, respectively.

[0027] The broadcast receiver **11** also includes an EPG data acquisition/storage section (storage unit) **31**, a (viewable) broadcast information acquisition/storage section (acquisition unit) **32**, a difference extraction/storage section (extraction unit) **33**, an electronic program guide data generation section (generation unit) **34**, and an electronic program guide data storage section **35**. Here, the sections from the EPG data acquisition/storage section **31** to the electronic program guide data storage section **35** are a data processing system for generating electronic program guide data.

[0028] The EPG data acquisition/storage section **31** specifies and stores EPG data (electronic program guide information) corresponding to a broadcast carrier capable of being received by the broadcast receiver **11**. The broadcast information acquisition/storage section **32** acquires broadcast station information that is viewable on the broadcast receiver **11**, and stores a broadcast information table. Furthermore, in the present embodiment, the broadcast information acquisition/storage section **32** also acquires broadcast station information that is viewable on the other broadcast receivers (second broadcast receiver **12** and third broadcast receiver **13**) connected to the home network **1**. In this case, the broadcast information acquisition/storage section **32** also stores a broadcast information table that is viewable on the other broadcast receivers.

[0029] FIG. **3** is an example of a broadcast information table showing a list of broadcast information that is viewable on each of the broadcast receivers connected to the home network **1**. As used herein, "viewable broadcast information" refers to information consisting of collected identifiers for uniquely specifying a broadcast station (channel) and program that is viewable on a broadcast receiver. In the example shown in FIG. **3**, the identifiers such as the name or the allocated number of a broadcast receiver connected to the home network **1** are first placed at the top of the table. For each broadcast receiver, a viewable broadcast station and program to be broadcasted by the broadcast station are placed as a list.

[0030] The difference extraction/storage section **33** extracts the difference between a broadcast information that is viewable on the broadcast receiver **11** and a broadcast information that is viewable on the other broadcast receivers configured on the same home network as that of the broadcast receiver **11**, and stores a broadcast difference information table that is viewable on a user.

[0031] FIG. **4** is an example of a broadcast difference information table showing a list of broadcast information that is viewable on each of the broadcast receivers connected to the home network **1**. As used herein, "broadcast difference information" refers to information consisting of collected identifiers for a broadcast station or program that is not viewable on the broadcast receiver **11** and viewable on the other broadcast receivers. In the example shown in FIG. **4**, in each of the broadcast receivers on the home network **1**, the identifiers such as name or allocated number of a broadcast receiver being currently viewed by a user are first placed at the top of the table. At the lower part thereof, the identifiers such as the name or the allocated number of the other broadcast receivers (second broadcast receiver **12** and third broadcast receiver **13**) on the home network **1** are placed. At the lower part where the identifiers of each of the other broadcast receivers (second broadcast receiver **12** and third broadcast receiver **13**) are placed, a broadcast station that is not viewable on the broadcast receiver **11** and viewable on each of the broadcast receivers and a program to be broadcast by the broadcast station are placed as a list. In other words, broadcast difference information in the present embodiment is a set of broadcasting or programs, for example, that are not viewable on the broadcast

receiver **11** and viewable on the broadcast receiver **12**, which is generated for each combination of the two broadcast receivers.

[0032] The electronic program guide data generation section **34** can identify EPG data and viewable broadcast difference information which have been acquired and extracted by the EPG data acquisition/storage section **31**, the broadcast information acquisition/storage section **32**, and the difference extraction/storage section **33** described above, and generates an electronic program guide based on the information. The electronic program guide data storage section **35** stores the electronic program guide generated by the electronic program guide data generation section **34**. The electronic program guide stored in the storage section **35** is displayed on the display section **29** in accordance with a display request from a user.

[0033] Next, with reference to a flowchart, the flow of the processing procedure executed by the broadcast receiver **11** of the present invention will be described in relation to the output of the electronic program guide. FIG. **5** is a flowchart showing the flow in which the electronic program guide of the broadcast receiver **11** is generated (i.e., program guide generation processing).

[0034] First, in step **S101**, the control section **42** determines whether or not broadcast information that is viewable on the broadcast receiver **11** (in FIG. **5**, referred to as "own device") should be updated (i.e., is viewable broadcast information of its own device in update timing?). When the obtained determination result is that broadcast information should be updated, the subsequent procedures in steps **S102**, **S103**, **S106**, and **S107** are sequentially executed. For a determination whether or not broadcast information should be updated, for example, the control section **42** includes a timer for measuring information update timing and the timer executes the measurement of a predetermined time. When the time period measured by the timer has elapsed, the control section **42** executes a determination. The timing of the determination standard in step **S101** may be performed at a constant time interval by the timer as described above, or may also be performed when the power supply of the broadcast receiver **11** is turned ON/OFF, or when a contract information is changed. In addition, a plurality of conditions may also be combined, which is not particularly limited thereto.

[0035] Next, in step **S102**, the broadcast information acquisition/storage section **32** acquires and stores the broadcast information that is viewable on the broadcast receiver **11**. Here, a contract confirmation command is used for the acquisition of the viewable broadcast information. As used herein, "contract confirmation command" refers to a command for transmitting contract confirmation information contained in an EIT (Event Information Table) or a SDT (Service Description Table) to the IC card **51**. The control section **42** transmits a contract confirmation command stored in the broadcast information acquisition/storage section **32** to the IC card **51**, whereby contract confirmation of a broadcast station or program can be performed according to the contents of its response. The EIT is a table in which program-related information such as program titles, broadcast date, and program contents is described. The SDT is a table in which information relating to data explaining a service in a system, for example, a service name, or service providers is described. This information as well as the audio data and the video data for a program are transmitted from a broadcast station. The control section **42** confirms whether or not the broadcast station can be viewed according to the contents of the response from the IC card **51**, and updates the contents of a broadcast information table as shown in FIG. **3**.

[0036] Next, in step **S103**, the control section **42** provides notification about the broadcast information that is viewable on the broadcast receiver **11** to the other broadcast receivers (second broadcast receiver **12** and third broadcast receiver **13**) (in FIG. **5**, referred to as "other devices") via the communication I/F section **21** by broadcasting. Here, the control section **42** sequentially executes step **S106** and step **S107** after the execution of step **S103**. These steps will be described below after the explanation of step **S105** below.

[0037] Next, in step **S104** (i.e., update notification of viewable broadcast information of other device received?), the control section **42** first waits for an update notice about viewable broadcast information to be submitted from the other broadcast receivers connected to the home network **1**. The instructions for transmitting viewable broadcast information can also be given to other broadcast receivers. In such a case, the control section **42** may issue a command for instructing the transmission of broadcast information via the communication I/F section **21** to other broadcast receivers. Here, the control section **42** sequentially executes the procedures of step **S105**, step **S106**, and step **S107** when the control section **42** receives an update notice.

[0038] Next, in step **S105**, the broadcast information acquisition/storage section **32** acquires broadcast information that is viewable on the other broadcast receivers. Furthermore, in step **S106**, the broadcast information acquisition/storage section **32** updates and stores the broadcast information table as shown in FIG. **3**.

[0039] Next, in step **S107**, the difference extraction/storage section **33** extracts the differences between viewable broadcast for each of the broadcast receivers based on the broadcast information table, and updates the contents of the broadcast difference information table as shown in FIG. **4**. After the procedure of step **S107** is executed, the process returns to step **S101**.

[0040] In step **S108**, the control section **42** executes step **S109** when it receives updated content for EPG data. Furthermore, in step **S109**, the EPG data acquisition/storage section **31** acquires and stores the EPG data. After the procedure of step **S109** is executed, the process returns to step **S101**.

[0041] Next, in step **S110** (i.e., program guide display request present?), a user performs an electronic program guide confirmation operation on the operation section **41**. When the operation section **41** transmits a display request signal for an electronic program guide to the control section **42**, step **S111**, step **S112**, and step **S113** are sequentially executed.

[0042] Next, in step **S111**, the electronic program guide data generation section **34** generates an electronic program guide using EPG data and broadcast difference information. Furthermore, in step **S112**, the electronic program guide data storage section **35** stores a generated electronic program guide. In step **S113**, the control section **42** outputs the stored EPG data to the display section **29**. After the procedure of step **S113** is executed, the process returns to step **S101**.

[0043] FIG. **6** is an example of a basic integrated electronic program guide to be generated and output in a display by the processing procedure shown in FIG. **5**. In FIG. **6**, an exemplary electronic program guide to be displayed on the broadcast receiver **11** based on the broadcast difference information table as shown in FIG. **4** is included.

[0044] In FIG. **6**, the entire area for the integrated electronic program guide is split, from top to bottom, into the area Y**1** where broadcast stations are displayed, the area Y**2** where viewable broadcast receivers are displayed, and the area Y**3** where program information is displayed. In addition, the entire area of the integrated electronic program guide is split, from left to right, into the area X**0** where the time zone is displayed and the areas X**1** to Xn where a program is displayed in broadcast station units. In the viewable broadcast difference information shown in FIG. **4**, broadcast stations (in FIG. **4**, corresponding to **3**, **5**, and **6**) that are not viewable on the broadcast receiver **11** and viewable on the other broadcast receivers **12**, and **13** are displayed by varying the background color so as to be visible to a user. Furthermore, a viewable broadcast receiver is displayed on the area Y**2**.

[0045] Although broadcast stations are highlighted by varying the background color of the broadcast stations in the above example, the display format is not particularly limited. For example, the display format can be rendered recognizable by a user by changing the color of the frame of the broadcast stations or displaying the broadcast stations in the form of characters. In addition, the display type of the viewable broadcast receiver is not particularly limited, and any user recognizable type may be used. For example, the instrument ID or instrument name set by the instrument manufacturer may be used, or a user-set name, or icon characterized by each instrument, or a room name in home where the instrument is installed may be displayed.

[0046] The display format of the electronic program guide is not limited to the above examples, and the electronic program guide to be output in a display may be other than the above configuration. Two examples of other electronic program guides (i.e., FIGS. **7** and **8**) are given in the following. In FIGS. **7** and **8**, the entire area for the integrated electronic program guide is split, from top to bottom, into the area Y**11**(Y**21**) where broadcast stations are displayed, the area Y**12**(Y**22**) where viewable broadcast receivers are displayed, and the area Y**13**(Y**23**) where program information is displayed. In addition, the entire area of the integrated electronic program guide is split, from left to right, into the area X**0** where the time zone is displayed and the areas X**1** to Xn where a program is displayed in broadcast station units.

[0047] FIG. **7** is an example of an electronic program guide on which the difference between the broadcast receiver **11** and other broadcast receivers **12** and **13** is displayed. In other words, in FIG. **7**, channels and programs that are not viewable on the broadcast receiver **11** are hidden, and only broadcast stations and programs that are viewable on other broadcast receivers **12** and **13** are displayed. With this arrangement, when there are a number of broadcast channels, the programs and broadcast channels that are not viewable on the reference device but viewable on other broadcast receivers may be easily visually recognized.

[0048] FIG. **8** is an example of an electronic program guide when there is a contract for each program. FIG. **8** shows that program F of "3 Television CC" in the station display area of the area Y**21** is not viewable on the broadcast receiver **11** but viewable on the broadcast receiver **12**. Here, the program is highlighted by changing the background color of the program information display area Y**23** instead of changing the entire area of the broadcast station, and the device on which a broadcast station is viewable is displayed at the bottom of the program information. With these configurations, the electronic program guides shown in FIGS. **6**, **7**, and **8** can be switched and displayed in accordance with instructions from the user, whereby the user convenience can be further improved.

[0049] As described above, the present invention provides a broadcast receiver enables readily recognizing whether there is any program or channel that is viewable on the other broadcast receivers that are communicatively connected and a control method for a broadcast receiver.

[0050] The broadcast receiver according to an exemplary embodiment described above, which is provided with a display section, corresponds to what is commonly referred to as a "television". However, the present invention is not necessarily a television having a display section. For example, a broadcast recorder or computer mounted with an interface capable of communicating with a tuner has also become common. For such a device, an electronic program guide can be generated and displayed on an external display section. That is, the broadcast receiver of the present invention is not limited to television.

[0051] While the embodiments of the present invention have been described with reference to exemplary embodiments, it is to be understood that the invention is not limited to the disclosed exemplary embodiments. The scope of the following claims is to be accorded the broadest interpretation so as to encompass all such modifications and equivalent structures and functions.

[0052] This application claims the benefit of Japanese Patent Application No. 2008-262239 filed Oct. 8, 2008 which are hereby incorporated by reference herein it their entirety.

What is claimed is:

1. A broadcast receiver having an interface capable of communicating with at least one other broadcast receiver and a display unit for displaying an electronic program guide, the broadcast receiver comprising:

a storage unit configured to store first broadcast information for specifying a broadcast channel and/or program that is viewable on the broadcast receiver;

an acquisition unit configured to acquire second broadcast information from the other broadcast receiver for specifying a broadcast channel and/or program that is viewable on the other broadcast receiver;

an extraction unit configured to extract a broadcast channel and/or program from the first and second broadcast information that is not viewable on the broadcast receiver and viewable on the other broadcast receiver; and

a generation unit configured to generate the electronic program guide that a user can distinguish a broadcast channel and/or program extracted from a broadcast channel and/or program that is viewable on the broadcast receiver.

2. The broadcast receiver according to claim **1**, wherein the generation unit generates the electronic program guide for displaying an extracted broadcast channel and/or program that is viewable on the broadcast receiver being hidden.

3. A control method for a broadcast receiver having an interface capable of communicating with at least one other broadcast receiver and a display unit for displaying the electronic program guide, the control method comprising:

storing first broadcast information for specifying a broadcast channel and/or program that is viewable on the broadcast receiver;

acquiring second broadcast information from the other broadcast receiver for specifying a broadcast channel and/or program that is viewable on the other broadcast receiver;

extracting a broadcast channel and/or program from the first and second broadcast information that is not viewable on the broadcast receiver and viewable on the other broadcast receiver; and

generating the electronic program guide that a user can distinguish a broadcast channel and/or program extracted from a broadcast channel and/or program that is viewable on the broadcast receiver.

4. The control method for the broadcast receiver according to claim **3**, wherein the generation step generates an electronic program guide for displaying an extracted broadcast channel and/or program that is viewable on the broadcast receiver being hidden.

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